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PROTOCHORDATA

COMPILED BY

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BY

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2.—Banse, K. & **Lefevere,** S. Funde von *Branchiostoma lanceolatum* (Pallas) in der Kieler Bucht. Kieler Meeresforsch. **10** 1954: 130–133.

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3.—Berner, L. D. On the previously undescribed aggregate form of the pelagic tunicate *Ritteriella picteti* (Apstein) (1904). Pacif. Sci. **8** (2) 1954: 121–124 4 figs.

4.—Bhatti, H. K. & **Zia-ud-Din.** Salps (Ascidians) of Karachi. Pakistan J. Sci. **1** (3) 1949: 112.

5.—Bielig, H. J., **Bayer,** E., **Califano,** L. & **Wirth,** L. Haemovanadin ein Sulfato-Komplex des 3-wertigen Vanadiums. Pubbl. Staz. zool. Napoli **25** 1954: 26–66 4 figs.

6.—Björnberg, T. K. S. Tres novas tornarias (Enteropneusta) das costas sul do Bracil [Three new tornaria larvae (Enteropneusta) from the coast of Brazil] English Abstract. Bol. Inst. oceanogr. S. Paulo **4** (1–2) 1953: 81–102 2 pls.

7.—Brewin, B. I. Ascidians of New Zealand. Part ix. A new species of *Distaplia*. Trans. roy. Soc. N.Z. **82** (1) 1954: 133–135 1 fig.

8.—Burdon-Jones, C. The habitat and distribution of *Rhabdopleura normani* Allmann. Univ. Bergen Årb. naturv. R. Publ. biol. Sta. **11** 1954: 1–11 3 figs.

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12.—Carlisle, D. B. The effect of mammalian lactogenic hormone on lower chordates. J. Mar. biol. Ass. U.K. **33** (1) 1954: 65–68.

13.—Carlisle, D. B. *Styela mammiculata* n.sp., a new species of ascidian from the Plymouth area. J. Mar. biol. Ass. U.K. **33** (2) 1954: 329–334 2 figs.

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15.—Ceas, M. P. Sulla morfogenesi del cervello nelle Ascidie. Ric. sci. **23** 1953: 821–826 3 figs.

16.—**Eliassen, E.** The physiology of the vascular system of invertebrates. I. A monograph on the blood pigments, their physical-chemical qualities, distribution, and physiological importance. Univ. Bergen Årb. **1953** (11) 1954: 1–66 25 figs.

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21.—**Hedgpeth, J. W.** The lancelets. Fish. Bull. U.S. **55** 1954: 499.

22.—**Hirai, E.** On the rows of stigmata of the ascidian, *Perophora orientalis* Arnbäck. Bull. Mar. biol. Sta. Asamushi **7** (1) 1954: 1–5 5 figs.

23.—**Hirai, E.** Morphological observations of ascidian larvae. I. *Cyathocormus mirabilis* Oka, 1913. Bull. Mar. biol. Sta. Asamushi **7** (1) 1954: 7–10 1 fig.

24.—**Hubrecht Laboratory.** Concise catalogue of the Central Embryological Collection of the Hubrecht Laboratory, Utrecht, 1953, pp. 44.

25.—**Kelley, J. W.** Metachromasy in eggs of fifteen lower animals. Protoplasma **43** (4) 1954: 329–346 5 figs.

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30.—**Kott, P.** Tunicata. Ascidians. Rep. B.A.N.Z. Antarct. Res. Exped. 1929–31 **1B** (4) 1954: 123–181 68 figs.

Lefevere, S. *see* Banse, K.

31.—**Mazzi, V.** Esistono fenomeni neurosecretori nelle Ascidie ? Boll. zool. **19** 1952: 161–162.

32.—**Millar, R. H.** The annual growth and reproductive cycle of the ascidian *Dendrodoa grossularia* (van Beneden). J. Mar. biol. Ass. U.K. **33** (1) 1954: 33–48 11 figs.

33.—**Millar, R. H.** The development of the ascidian *Pyura microcosmus* (Savigny). J. Mar. biol. Ass. U.K. **33** (2) 1954: 403–407 2 figs.

36.—**Millar, R. H.** *Pseudodistoma africanum*, sp.n., a new compound ascidian from South Africa. Ann. Mag. nat. Hist. Ser. 12 **7** 1954: 128–132 1 fig.

37.—**Minganti, A.** Fosfatasi alcaline nello sviluppo delle Ascidie. Pubbl. Staz. zool. Napoli **25** 1954: 9–17 1 pl.

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39.—**Monroy, A.** Observations on the fertilization reaction in the egg of some polychaetes and an ascidian with special reference to the cortical changes. Pubbl. Staz. zool. Napoli **25** 1954: 188–197 1 pl. 1 fig.

40.—**Olsson, R. & Wingstrand, K. G.** Reissner's fibre and the infundibular organ in Amphioxus—results obtained with Gomori's chrome alum haematoxylin. Univ. Bergen Årb. naturv. R.. Publ. biol. Sta. **14** 1954: 1–14 3 pls. 2 figs.

41.—**Ortolani, G.** Risultati definitivi sulla distribuzione dei territori presuntivi degli organi nel germe di ascidie allo stadio viii, determinati con le marche al carbone. Pubbl. Staz. zool. Napoli **25** 1954: 161–187 91 figs.

42.—Palombi, A. & **Santarelli,** M. Gli animali commestibili dei mari d'Italia. Rescrizioni e nomi italiani, dialettali, e stranieri dei pesci, tunicati, echinodermi, molluschi, crostacei. Milano (Ulrico Hoepli) 1953 vi–349 2 pls. col. 261 figs.

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45.—Pruvot-Fol, A. Origine de la tunique des Tuniciers. Rev. suisse Zool. **58** 1951: 605–630 10 figs.

46.—Rattenbury, J. C. The embryology of *Phoronopsis viridis*. J. Morph. **95** 1954: 289–349 40 figs.

47.—Redfield, A. C. *et al.* Marine fouling and its prevention, Annapolis, Md. (U.S. Naval Institute), 1952, x–388, frontis., text illust.

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50.—Sebastian, V. O. On *Polyclinum indicum*, a new ascidian from the Madras coast of India. J. Wash. Acad. Sci. **44** (1) 1954: 18–23 28 figs.

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74.—Zwillenberg, L. H. & **Zwillenberg,** H. H. L. Chromosome counts in tunicates and a modified method for making permanent squash preparations. Nature, London **173** (4410) 1954: 876–877 3 figs.

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Amaroucium monoticum **sp. nov.** adult and larva Japan, TOKIOKA Publ. Seto Mar. biol. Lab. **3** (3) 1954 pp. 242–243 pl. 19 figs. 4–5, pl. 20 fig. 1 ; *A. picardi* **sp. nov.** Tunisia, PÉRÈS Bull. Sta. oceanogr. Salammbô No. **49** 1954 pp. 15–16 fig. 1.

Aplidiopsis tokaraensis **sp. nov.** Japan, TOKIOKA Publ. Seto Mar. biol. Lab. **3** (3) 1954 pp. 241–242 pl. 18 fig. 4, pl. 19 figs. 1–3.

Aplidium caeruleum larva described and figd., KOTT **30** ; *A. fuscum* larva described and figd., KOTT **30** ; *A. globosum* larva described and figd., KOTT **30** ; *A. scabellum* larva described, KOTT **30**.

Polyclinum indicum **sp. nov.** India, SEBASTIAN J. Wash. Acad. Sci. **44** (1) 1954 pp. 18–23 figs. 1–28 ; *P. tsutsuii* **sp. nov.** Japan, TOKIOKA Publ. Seto Mar. biol. Lab. **3** (3) 1954 pp. 240–241 fig. 1 pl. 18 figs. 1–3.

Pseudodistoma africanum **sp. nov.** South Africa, MILLAR Ann. Mag. nat. Hist. Ser. 12 **7** 1954 pp. 128–132 fig. 1.

Sidynum punctans **sp. nov.** Commonwealth Bay Antarctic, KOTT Rep. B.A.N.Z. Antarct. Res. Exped. 1929–31 **1B** 4 1954 p. 177 ; *S. radiatum* **sp. nov.** adult and larva Kerguelen, ibid. p. 176 ; *S. antarcticum* **sp nov.** adult and larva MacRobertson Land Antarctic, ibid. pp. 176–177.

Synoicum arenaceum larva described and figd., KOTT **30** ; *S. circumvolutum* **sp. nov.** larva and adult Heard Island Antarctic, KOTT Rep. B.A.N.Z. Antarct. Res. Exped. 1929–31 **1B** 4 1954 p. 169 fig. 63 ; *S. clavatum* redescribed and figd., KOTT **30** ; *S. jordani* redescribed and figd., larva, TOKIOKA **56** ; *S. pyriformis* larva described and agd., KOTT **30**.

DIDEMNIDAE

Didemnum number of rows of stigmata variable, CARLISLE **9** ; *D. albidum* larva described and figd., KOTT **30** ; *D. biglans* larva described and figd., KOTT **30** ; *D. candidum* compared with *D. helgolandicum*, *D. maculosum* and *Trididemnum alleni*, CARLISLE **10** ; *D. candidum* in Japan, TOKIOKA **55**, larva described and figd., CARLISLE **10**, KOTT **30**, TOKIOKA **55**, abnormal larva, TOKIOKA **55**, includes *D. canum*, PÉRÈS **43** ; *D. canum* included in *D. candidum* Savigny, PÉRÈS **43** ; *D. chondrilla* larva described and figd. KOTT **30** ; *D. gelatinosum* presence of common cavity depending on size of colony, CARLISLE **9** ; *D. helgolandicum* redescribed, figd., and distinguished from related spp., British Isles, larva described and figd., CARLISLE **10** ; *D. lambitum* larva described and figd., KOTT **30** ; *D. maculosum* divided between *D. helgolandicum* and *D. candidum* and suppressed, CARLISLE **10** ; *D. mortensi* larva described and figd., KOTT **30** ; *D. moseleyi* larva, TOKIOKA **55, 58** ; *D.* (*D.*) *moseleyi granulatum* **form. nov.** adult and larva Japan, TOKIOKA Publ. Seto Mar. biol. Lab. **3** (3) 1954 pp. 244–245 pl. 21 figs. 1–4 ; *D.* (*D.*) *moseleyi punicicolor* **form. nov.** Japan, ibid. pp. 245–246 pl. fig. 5, pl. 22 figs. 1–3 ; *D. paradoxum* larva described and figd., KOTT **30** ; *D.* (*D.*) *pulvinum* **nom. nov.** formerly *D.* (*D.*) *gottschaldti* Tokioka (homonym), Publ. Seto Mar. biol. Lab. **3** (3) 1954 pp. 247–248 pl. 23 figs. 8–10 pl. 24 figs. 1–5 ; *D. studeri* larva described and figd, KOTT **30**.

Leptoclinides included as subgenus of *Didemnum* except *L. glauerti* which becomes type sp. of *Sinecloaca* gen. nov., CARLISLE & CARLISLE **14** ; *L. echinatus* **sp. nov.** Japan, TOKIOKA Publ. Seto Mar. biol. Lab. **4** (1) 1954 pp. 80–82 2 ; *L. kerguelenensis* **sp. nov.** adult and larva Kerguelen, KOTT Rep. B.A.N.Z. Antarct. res. Exped. 1919–31 **1B** 4 1954 pp. 165–166 fig. 57 ; *L. multilobata* **sp. nov.** Tasmania, ibid. p. 166 figs. 59–60 ; *L. nigrothorax* **sp. nov.** Japan, TOKIOKA Publ. Seto Mar. biol. Lab. **4** (1) 1954 pp. 79–80 pl. 5 figs. 6–8 ; *L. tigrinum* redescribed and figd., TOKIOKA **57**.

Leptoclinum gelatinosum synonym of *Didemnum gelatinosum*, CARLISLE **9** ;

L. midori **sp. nov.** Japan, TOKIOKA Publ. Seto Mar. biol. Lab. **3** (3) 1954 pp. 249–250 pl. 25 figs. 3–7.

Lissoclinum fragile Japan, TOKIOKA **55.**

Polysyncraton amethysteum may be synonym of *P. lacazei*, PÉRÈS **43** ; *P. lacazei* variability, PÉRÈS **43.**

Sinecloaca **gen. nov.** type species *Leptoclinides glauerti* Michaelsen 1930, CARLISLE & CARLISLE J. Mar. biol. Ass. U.K. **33** (1) 1954 p. 24.

Trididemnum alleni dwarf or juvenile stage of *Didemnum candidum*, CARLISLE **10** ; *T. niveum* larva described, CARLISLE **11** ; *T. savignyi* a synonym of *T. tenerum*, PÉRÈS **43** ; *T. tenerum* includes *T. savignyi*, PÉRÈS **43.**

DIAZONIDAE

Tylobranchion antarcticum synonym of *T. speciosum*, KOTT **30** ; *T. speciosum* includes *T. antarcticum* and *T. weddelli*, variations of sp., KOTT **30** ; *T. weddelli* a synonym of *T. speciosum*, KOTT **30.**

PEROPHORIDAE

Ecteinascidia jacarens **sp. nov.** Japan, TOKIOKA Publ. Seto Mar. biol. Lab. **3** (3) 1954 pp. 256–257 pl. 30 figs. 6–8, pl. 31 figs. A–B, pl. 32 figs. 1 ; *E. tokaraensis* **sp. nov.** Japan, ibid. pp. 255–256 pl. 30 figs. 1–5 ; *E. turbinata* may include *Perophoropsis herdmani*, PÉRÈS **43.**

Perophora listeri tokarae **var. nov.** Japan, TOKIOKA Publ. Seto Mar. biol. Lab. **3** (3) 1954 pp. 254–255 pl. 29 figs. 3–5 ; *P. orientalis* redescribed, number of rows of stigmata important diagnostic character, HIRAI **22.**

Perophoropsis herdmani may be synonym of *Ecteinascidia turbinata*, PÉRÈS **43.**

AGNESIIDAE

Agnesia complicata **sp. nov.** Enderby Land Antarctic, KOTT Rep. B.A.N.Z. Antarct. Res. Exped. 1929–32 **1B** 4 1954 pp. 151–152 figs. 32–33.

STYELIDAE

Cnemidocarpa fertilis minor **form. nov.** Japan, TOKIOKA Publ. Seto Mar. biol. Lab. **4** (1) 1954 pp. 87–88 fig. 4, pl. 7 fig. 18.

Metrocarpa nigrum and *M. leachi* distinguished, PÉRÈS **43.**

Pelonaia corrugata larva described and figd., MILLAR **35.**

Polycarpa rubra **nom. nov.** Japan formerly *P. simplex* Tokioka (homonym), TOKIOKA Publ. Seto Mar. biol. Lab. **3** (3) 1954 p. 247 ; *P. takarazima* **sp. nov.** Japan, ibid. pp. 260–261 pl. 34 figs. 6–9, pl. 35 figs. 1–3.

Protostyela heterobranchia **gen. nov., sp. nov.** British Isles, MILLAR J. Mar. biol. Ass. U.K. **33** (3) 1954 pp. 677–679 fig. 1.

Styela longata **sp. nov.** Tasmania, KOTT Rep. B.A.N.Z. Antarct. Res. Exped. 1929–31 **1B** 4 1954 p. 145 figs. 28–29 ; *S. mammiculata* **sp. nov.** British Isles, CARLISLE J. Mar. biol. Ass. U.K. **33** (2) 1954 pp. 329–334 figd. 1–2 ; *S. papillata* **sp. nov.** MacRobertson Land and Kemp Land Antarctic, KOTT Rep. B.A.N.Z. Antarct. Res. Exped. 1929–31 **1B** 4 1954 pp. 143–144 fig. 26 ; *S. partita* larva described and figd., TOKIOKA **55.**

PYURIDAE

Boltenia isibasii **sp. nov.** Japan, TOKIOKA Publ. Seto Mar. biol. Lab. **4** (1) 1954 pp. 94–96 fig. 6.

Microcosmus curvus **sp. nov.** Japan, TOKIOKA Publ. Seto Mar. biol. Lab. **3** (3) 1954 pp. 263–264 pl. 37 figs. 2–9.

Pyura georgiana may be synonym of *P. legumen*, KOTT **30** ; *P. legumen* synonymy and variations, KOTT **30** ; *P. microcosmus* larva and post-larva described and figd., MILLAR **33** ; *P. turqueti* included in *P. lugemen*, KOTT **30.**

MOLGULIDAE

Molgula confluxa not a synonym of *M. pulchra*, KOTT **30** ; *M. spiralis* **sp. nov.** Enderby Land Antarctic, KOTT Rep. B.A.N.Z. Antarct. Res. Exped. 1929–31 **1B** 4 1954 p. 134 figs. 10–11.

Molguloides tenuis **sp. nov.** MacRobertson Land Antarctic, KOTT Rep. B.A.N.Z. Antarct. Res. Exped. 1929–31 **1B** 4 pp. 138–139 figs. 19–21.

Paraeugyroides macquariensis **sp. nov.** Macquarie Island Antarctic, KOTT Rep. B.A.N.Z. Antarct. Res. Exped. 1929–31 **1B** 4 1954 pp. 139–140 figs. 22–24.

THALIACEA

SALPIDA

Key to genera and species, YOUNT **73**.

Brooksia rostrata aggregate form redescribed and figd., TOKIOKA **59**.

Cyclosalpa virgula named as type sp. of *Helicosalpa*, YOUNT **73**.

Cyclosalpinae subfam. nov. Salpidae, YOUNT Pacif. Sci. **8** (3) 1954 p. 282.

Helicosalpa type sp. *Cyclosalpa virgula* Salpidae, distinguished from *Cyclosalpa*, YOUNT **73**.

Pegea confoederata Japan, HANEDA & TOKIOKA **20**.

Ritteriella picteti aggregate form described and figd., BERNER **3**.

Salpa cylindrica type of *Weelia* gen. nov., YOUNT **73**.

Salpinae **subfam. nov.** Salpidae, YOUNT Pacif. Sci. **8** (3) 1954 p. 292.

Weelia **gen. nov.** Salpidae type species *Salpa cylindrica* Cuvier, YOUNT Pacif. Sci. **8** (3) 1954 p. 304 figs. 16–77.

LARVACEA

Oikopleura dioica Japan, YAMAZI **68 69, 71, 72** ; *O. longicauda* Japan, YAMAZI **69, 71**.

Fritillaria haplostoma Japan, YAMAZI **69** ; *F. pellucida* Japan, YAMAZI **69**.

CEPHALOCHORDATA

BANSE & LEFEVERE **2** ; HEDGPETH **21** ; OLSSON & WINGSTRAND **40**.